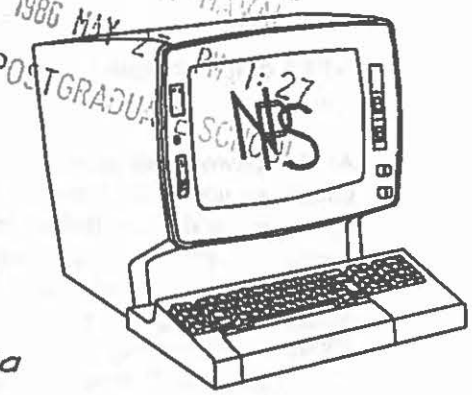
1986-05-22

Computer Center Newsletter / May 22, 1986

Monterey, California, Naval Postgraduate School

Computer Center Newsletter



Naval Postgraduate School Monterey, California

May 22, 1986

Volume 18, No. 4

NEW SERVICES

BITNET IS HERE!

The Naval Postgraduate School is now an active member of BITNET, the "Because It's Time NETwork", an informal, loosely connected electronic network of educational and education-related organizations throughout the world.

BITNET was born at the City University of New York (CUNY), in response to a perceived need to provide easy, economical inter-university communications. In May of 1981 the first link, between Yale and CUNY, was established; then a cross-country link was established to Berkeley. Most major universities in the U.S. are now connected. BITNET currently includes over 1200 nodes at more than 500 institutions worldwide.

As the network has grown, so have its capabilities. Gateways now exist between BITNET and other electronic mail/ electronic teleconferencing networks. (A gateway is a means by which two or more networks can exchange information.) At the present time gateways exist between BITNET and CSNET (Computer Science Network), DDN (Department of Defense), Mailnet, VNET (IBM's internal network), CCNET, and EARN (the European Academic Research Network). Thus it is possible to communicate with institutions all over the U.S. as well as those in western Europe, parts of the Middle East, and Africa. Planning is underway for a connection to Japan.

BITNET is a simple store-and-forward network, utilizing SPOOL space at participating institutions. Its primary purpose is to facilitate communications between colleges and universities by reducing the amount of effort necessary to exchange information.

Users share information by electronic mail. Two basic kinds of communication are possible on the network: sending a FILE and sending a MESSAGE. A file can contain the text of a paper, a program, data -- anything that you can enter into a file on CMS. When you send a file, it is routed through the network to its destination and held there until the receiver claims it. The recipient does not have to be logged on when you send the file and no limit exists on file size. On the other hand, a message can ONLY be sent to someone who is logged on to a network node. Messages appear on the receiver's screen and are limited to one line at a time.

Specific information and details on how you can send files and messages via BITNET will be available as soon as we have developed documentation. Our connection is now operational, but we are waiting for more user-friendly software interfaces before announcing directions for the general user. Watch for NEWS items online. Once the MAIL and MAILER utilities are in place, anyone with a CMS account will be able to exchange information electronically with anyone else connected to BITNET.

In order to join, a university must agree to store and forward messages without charge, buy modems and lease a phone line to the nearest available BITNET member (in our case to the University of California at Santa Cruz), and agree to allow someone else to connect to its computer. This we have done.

Start now to ask your colleagues for their BITNET addresses. Your BITNET address is your userID + @ + NAVPGS (NAVPGS is our node name). So if your userID is 1234p, your BITNET address would be 1234p@NAVPGS. Many university people now print their BITNET address on their business cards next to their postal mailing address.

(This article is based on articles appearing in the *Center Newsletter,* Clemson University, Spring 1985, and *Access,* the Oregon State University computing newsletter, May/June 85.)

ACCESS TO SUPERCOMPUTERS VIA NSF

Have your problems outgrown the IBM 3033? If so, then a recent initiative of the National Science Foundation may be of great interest to you. NSF's Office of Advanced Scientific Computing has arranged for access to supercomputing resources at the following institutions:

Center	*System*
University of Minnesota	Cray 2
AT & T Bell Laboratories	Cray X-MP/24
Colorado State University	Cyber 205
Digital Productions	Cray X-MP/24, advanced graphics

These Centers are Phase I or Resource Centers; NSF is purchasing services from these institutions as an interim means of providing researchers with access to supercomputers. In addition, NSF has created four supercomputer centers in the following locations:

Center	*Configuration*
Princeton University	CYBER 205 - planning to upgrade to an ETA10

Cornell University	IBM 3084 QX/FPS 264 Scientific Processor
UC San Diego	CRAY X-MP/48
U of Illinois at Urbana-Champaign	CRAY X-MP/24

Requests for access to supercomputer services or time at the new Centers should be submitted to the appropriate NSF research program. See "Grants for Scientific and Engineering Research", NSF83-57 available from the Office of Research Administration, Herrmann Hall.

Once review procedures are established at the centers, you will have the option of applying to either the NSF or the Center directly.

For additional information on the programs and the hardware and software facilities available at the various sites contact the Director's Office, Computer Center, (In-130, ext 2572).

NEW C COMPILER FOR VM/CMS

A new C Language processor has been installed on the VM/CMS system. This processor is licensed from SAS Institute and is called the "Lattice C Native Compiler for IBM 370 System." Lattice Inc. was the original development company.

Consultation support is limited. For questions about the implementation, contact Dennis Mar, In-102A. Language questions should be resolved by consulting the references.

To access the disk containing the C compiler, issue the command:

```
LINKTO SASC
```

Before you begin work, you should declare the following GLOBAL statements:

```
GLOBAL TXTLIB LC370
GLOBAL MACLIB LC370
```

To compile a C program issue the command

```
LC370 progname
```

where progname is the name of the program you wish to compile. A TEXT file will be created on your disk.

There are two ways to load the TEXT file and execute the program.

```
CLINK progname (START
```
or
```
LOAD progname (START
```

The first method is recommended by the documentation. It appears that this method is required when several programs must be linked together or when you have a large program. The drawback is that CLINK is very slow. The second method appears to be all right for simple C programs.

For a simple C program, look on the SASC disk for a file called FTOC C. Files containing C programs must have the filetype C. The source code must be in lower case. To insure that XEDIT keeps you in lower case, place the following command in your PROFILE XEDIT.

```
&IF &2 = C CASE MIXED IGNORE
```

The C language uses some characters which are not always available on the IBM terminals or printers. You can use the following alternative representations:

(| for a left square bracket
|) for a right square bracket
(< for a left brace (curly bracket)
>) for a right brace (curly bracket)

References:

"Reference for Lattice C Native Compiler" Technical Report: C-101, SAS Institute Inc. 1985 (A copy is available for use in the Consulting Office. To purchase your own reference, contact: SAS Institute Inc., P.O. Box 8000, Cary, NC 27511, (919) 467-8000. Cost: $15.00)

Harbison & Steele, *C - A Reference Manual,* Prentice-Hall, 1984.

Kernighan & Ritchie, *The C Programming Language,* Prentice-Hall, 1978.

MICRO MATTERS

PC NETWORK FOR WORD PERFECT AND WORDSTAR USERS

The Computer Center's micros in In-151 are available to word-processing users Monday through Friday from 0900 to 1600. Four IBM PC's are included in the network. An IBM AT is currently being used as the file server on the system. Each remote system has two floppy disk drives and access to three virtual drives on the hard disk of the network server. Two of these virtual drives are read-only and contain DOS utilities and word processing software. One of the drives is available to the user for temporarily storing files. The user must still copy all files to his own diskettes when he completes a session on the network, since subsequent users may have to erase files on the virtual hard disk.

Printing can be spooled to an Epson MX-80 or printed on a NEC Spinwriter which is local to remote user #14 or a Corona Laser printer which is local to user #16. The Corona Laser printer has the capability to emulate an Epson MX-80 printer and can therefore be used with most programs which use that printer. Directions for using the spooler or the local printers are posted at each of the PC network nodes.

Word Perfect (Satellite Software, Inc.), one of the most popular word processors for microcomputers, is available to net users. It has recently been updated to version 4.1. Version 4.1 has a built-in Thesaurus, a split screen to view two documents at the same time, line drawing, sorting, and many other new features/improvements. Documents created with Word Perfect can be printed on the Corona printer by using the Epson emulation software.

An evaluation copy of Word Star 2000 (MicroPro, Inc.) is also available to net users. Word Star 2000 has been installed with options to use either the Epson MX-80 or the Corona Laser printer.

For more information contact Kathy Strutynski, In-151 or In-103, x2611 or x2696. Her regular consultation hours are 1300-1500, Monday through Thursday.

ZENITH Z-248 CONTRACT

Zenith Data Systems has been awarded the new mandatory supply contract, the follow-on to the Z-120 microcomputer. The new basic system is the Z-248 with an 80286 8MHz cpu, 512KB RAM, and dual 360KB floppy disk drives -- all for $1103. Options include RAM upgrades to 1.1MB and 3.1MB; 20MB hard disks; and dot-matrix, letter-quality and color graphics printers. Also available is a Z-120 emulator card that will allow Z-120 software to run on a Z-248.

The contract number is F19630-86-D-0002, dated 28 February 1986. The ordering procedure is the same as for the Z-120, Z-150, and the Televideo XL portable contracts. Although we do not have a copy of the contract yet, descriptions of the line items were published in "Chips Ahoy", April 1986. This is the Navy's microcomputer periodical, which is on display in the Center's Reference Library, In-162.

EQUIPMENT NEWS

REMOVAL OF CARD PUNCH MACHINES FROM THE CENTER

The IBM 2540 Card Reader/Punch machine located in the main computer room of Ingersoll Hall will be removed sometime this summer. The exact date is not fixed at this time.

MVS users are encouraged to make sure that all their data decks and program decks are transferred to their VM/CMS disk or backed up on magnetic

tape to avoid any loss of information or other inconvenience.

The IBM 129 Card Data Recorder (card punch) in In-151 will also be removed at about the same time. This is the last survivor of the banks of keypunches used at the Center in the 'old days'. This machine is currently used both for key punching and interpreting of punched cards.

ADVANCING THE 3800 PRINTER

If you direct your output to the IBM 3800 page printer during slower periods of activity, *e.g.,* late night or weekends, please do not request the operator to advance your output so that you can take it away immediately. The system will, on its own, advance the last output if there has been no printer activity for 10 minutes. Users requiring immediate access to their outputs may send them to the IBM 1403 impact printer. The operator on duty will advance any 1403 output on request.

GRAPHICS TERMINALS MOVED

Two graphics workstations consisting of an IBM 3277 terminal, TEK618 display and TEK4381 hardcopy unit have been removed from the public areas in Root Hall and the thesis study building (Building 223) due to low usage. It is anticipated that these units will be better utilized in Room 148, Ingersoll Hall.

LANGUAGES

VS FORTRAN CHARACTER DATA AND FUNCTIONS

The following article is part of a continuing series we have been publishing to familiarize users with some of the new and most useful features of IBM's VS Fortran.

The type statement CHARACTER can be used to define and initialize variables containing literal information:

```
CHARACTER NAME*3/'IBM'/
```

creates a 3-byte variable and initializes it to 'IBM'.

```
CHARACTER*4 ANS(2)
```

creates an array of two 4-byte elements, ANS(1) and ANS(2).

CHARACTER Expressions

Character expressions may be formed by using one or more character operands, together with character operators:

The concatenation operator joins CHARACTER operands:

'AB'//'CDE' yields 'ABCDE'

Substrings can be extracted and processed using a form of subscript notation:

If ABC = 'YESNO ' then

```
ANS(1) = ABC(1:3)
ANS(2) = ABC(4:6)
```

would place 'YES' in ANS(1) and 'NO ' in ANS(2).

Then

```
UNIT = ANS(2)(2:2)//ANS(2)(1:1)//ANS(1)(2:2)
```

would place 'ONE' in UNIT.

When relational operators (.GE.,.EQ.,etc.) are used with CHARACTER variables, they apply to string lengths.

Intrinsic CHARACTER Functions

- ICHAR converts CHARACTER variable to INTEGER;
- CHAR converts INTEGER to CHARACTER;
- LEN provides length of CHARACTER item;
- INDEX provides position of substring within another string;
- LGE, LGT, LLE, LLT compare CHARACTER items aphamerically.

EXAMPLE:

If A1 = 'ZED' and A2 = 'ABRAHAM', then
LLE(A1,A2) would be FALSE.

PASCAL/VS PROGRAMS CALLING VS FORTRAN PROGRAMS

If you want to call a Fortran program from Pascal/VS you must now include a call to a Fortran subroutine called VFEIN#. This subroutine will initialize the execution environment of Fortran. This is mentioned in the manual *VS FORTRAN Language and Library Reference* (SC26-4119-1) on page 435.

Since # is an unrecognizable character to both VS Fortran and Pascal/VS you must also write a short assembler program, which will allow both compilers to recognize this subroutine. The VS Fortran part of the assembler is on page 440 of the *VS FORTRAN Language and Library Reference* manual under 'Initialize Environment'. This short assembler program is referred to by Pascal/VS as the body of the Assembler program. The Assembler program for Pascal/VS is in the *Pascal/VS Programmer's Guide* (SH20-6162-2) on page 106. To call up subroutine VFEIN#, put into your Pascal/VS program the following lines:

```
procedure vfein; FORTRAN;
...
vfein;
```

The call to procedure vfein must be before any calls to Fortran subroutines.

After making sure you have text files for all sections of the program, use the PASCMOD command in Pascal/VS to link the sections together.

If you have any questions see Patricia Collins in In-163, x2574.

APL HARDCOPY

Local APL users have two hardcopy devices which will display APL characters: the INGAPL dot-matrix printer and the 3800-3 page printer.

The screen presentations of an APL session can be saved as a console file by the RECORD command. For more information, type: RECORD ?

Before you try to XEDIT the RECORD file, you must issue the command CP TERMINAL APL ON. This command informs XEDIT that you will be editing a file with APL characters. If you do not give this command, XEDIT will change some of the APL characters into something unrecognizable.

To direct the record file to the dot-matrix printer in Ingersoll-151, first type: REMOTE INGAPL. Then print the file.

To use the 3800-3 page printer, type: ROUTE 3800 APL10. Then print the record file.

The only limitation when printing APL on the 3800-3 is that lowercase letters will not show up. If you have lowercase letters in the file, you should convert them to uppercase before printing. Use the UP option of COPY:

COPY fname ftype fmode (UP

To demonstrate the 3800-3 APL font, the atomic vector is displayed as a 16 by 16 matrix. The 256 element atomic vector contains all possible character codes in the system.

MISCELLANEOUS VM/CMS

A BROWSE KEY FOR FILELIST

Filelist is the newer, more powerful version of Flist. Most people use one or the other as a front-end for editing, executing, submitting, browsing and removing files on minidisks (usually A-disk). Two advantages of Filelist are that it provides a Refresh function on PF key 2/14, and it works almost the same as Rdrlist which provides a panel showing files in one's virtual reader. One drawback of Filelist was that it has no assigned PF key to Browse a file. But now if you type

FILELBRW

you will receive on your A disk a file called PROFFLST XEDIT which sets PFkey 10 and 22 (otherwise unused) to Browse. Instructions in PROFFLST XEDIT are executed each time Filelist is entered (analogous to PROFILE EXEC). If you already have your own PROFFLST XEDIT, the FILELBRW command will do nothing.

SPECIAL PRINTING ON THE 3800 PRINTER

Greek characters, subscripts, superscripts and other special characters that could be printed on the Sherpa printer are now available on the 3800 pageprinter. As with the Sherpa printer, it is possible to switch between fonts within a single line, and several new fonts are available, including Orator, Script, Text-Underscored, and Prestige-pica. In addition, a ten-pitch italic font is available for the first time: Courier-Italic. Two Optical Character Recognition fonts are available as well: OCRA and OCRB. For further details, type

LINKSCR NEWS

These special characters and font shifts are unavailable when Scripting with three passes (as in Thesis9, and in printing the table of contents at the beginning of the printout with **Syspub** or **GML**). Thesis9 has been modified to work properly on a single pass, and thus be able to print these special characters. Most Thesis9 users will have to modify their files to print Greek and subscripts. Again, see LINKSCR NEWS.

Bring Script and Thesis9 questions to Larry Frazier, in In-104, x2671, userid 0084p.

GRAPHICS OUTPUT ON THE 3800 PRINTER

For graphic output on the 3800 printer the command CALL SHERPA(..) in your Fortran program now works. You must rerun your program through DISSPLA. This creates a file of type SHGRAPH on your A-disk. You can send this file to the 3800 printer with the same command as was used for the Sherpa printer:

SHERPA filename SHGRAPH filemode

Another way to get to the 3800 printer is to use CALL COMPRS in your Fortran program. This creates a file of type METAFILE on your a-disk. Then go through DISSPOP to send the plot to the 3800 printer.

See Patricia Collins, in In-163, x2574, with questions on graphics.

OPERATIONS INFORMATION

CONSULTING HOURS

Mon - Fri 0900-1130 and 1315-1545 in In-146

Reference materials in the Consulting Office must not be removed from that room without special permission of the Consultant on duty or a Computer Operations Shift Supervisor.

HOURS OF OPERATION

Mon-Fri	0000-2400	Normal Service
Sat	0000-0800	Unattended Service
	0800-2130	Normal Service
	2130-2400	Mini-disk Backup
Sun	0000-0800	Mini-disk Backup
	0800-2400	Normal Service

Normal Service	VM and MVS available. Operator on duty.
Unattended	VM and MVS available. No operator on duty. Center's high-speed printers secured. Remote printers available.
Mini-Disk Backup	MVS Service only. No VM.

Notes: Preventive maintenance is normally performed 0700-1400 hours, first Sunday of each month.

Systems work can preempt this schedule during 0700-1200 on Saturdays. Sufficient warning will be posted in the VM log message.

The Center's two high-speed printers will be secured 30 minutes prior to a change to unattended mode.

Call 646-2713 for recorded system status

Information on Printed Output

The Computer Center has an IBM 3800 non-impact printer and a 1403 impact printer in room IN-140. These printers are available around the clock, 7 days a week, except during unattended periods. (See "HOURS OF OPERATION"). If you want an operator to unload a printer, expect to wait until an operator is available. If you have received instruction from a computer operator, you can remove printout from either printer. If you do, leave separated output on the counter-top, or file it in the bin matching the first letter of the distribution code. Since self-service is available, and many people use the Computer Center, all must observe the following rules.

- Press the READY button after removing output.
- Make sure output is folding correctly in the output hopper.
- Separate all jobs in the batch of output removed from the printer.

Avoid unnecessary printing. Return output to your terminal for review and/or editing prior to printing. Use the default output class, SYSOUT=A, for general output from MVS. This produces a "Double Page Format" i.e., two output pages per sheet of paper on the 3800 page printer. It is expected that few will need to use the 1403 impact printer.

This newsletter appears semiquarterly and is written by members of the staff, W. R. Church Computer Center (Code 0141), Naval Postgraduate School, Monterey, California 93943. Requests for further information or suggestions for articles may be addressed to the User Services Manager, Code 0141 (In-133), x2752 (or x2573 for messages).

The Center operates a multiprocessor configuration consisting of an IBM 3033 Attached Processor System (16 Megabytes) loosely coupled with an IBM 3033 Model U (16 Megabytes) and an IBM 4381 Model M1 (8 Megabytes). Interactive computing is provided under VM/SP CMS, and batch-processing service under MVS with JES3 Networking.

Distribution: List 3, plus: 350-B3, 3-B4, 10-F3, 3-F4, 1-F6, 1-F7